

WHAT IS CLAIMED IS:

1/ A method of detecting a substance to be detected
containing at least one component dispersible in air in
5 the form of solid particles, comprising the following
steps:

a) when a load that might contain said substance to
be detected is not itself contained in a closed space,
placing said load in a substantially closed space, at
10 least for a predetermined storage time for allowing solid
particles of said substance to be detected to disperse in
air;

b) inserting at least one sampling member for
sampling the air contained inside said closed space, at
15 least after said load has been stored for said
predetermined time in said closed space, said sampling
member comprising at least one filter presenting pore or
mesh size adapted to filtering solid particles of said
substance that might be dispersed in the air contained in
20 said closed space;

c) sucking in the air contained in said closed space
via said sampling member containing said filter for a
period of time necessary for filtering a sufficient
quantity of air that might contain solid particles of
25 said substance dispersed in said air;

d) removing the filter from the sampling member and
optionally placing it in a hermetically closed receptacle
prior to performing detection; and

e) proceeding to detect the presence, if any, of
30 solid particles of substance to be detected retained on
said filter.

2/ The method of claim 1, wherein solid particles of
substance to be detected present on said filter are
35 detected by performing analysis in an analysis device
adapted to detect traces of solid particles of said
substance to be detected.

3/ The method of claim 1, wherein the presence, if any, of traces of substance to be detected is detected with the help of a biosensor device.

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4/ the method of claim 3, wherein said substance has a smell, comprising detecting the smell of traces of solid particles of substance to be detected retained on said filter, by an animal sniffing said filter.

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5/ The method of claim 1, wherein traces of solid particles of substance to be detected retained on said filter are detected by chemical analysis equipment capable of detecting at least one chemical component of said substance to be detected.

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6/ The method of claim 1, wherein detection is performed of said substance to be detected containing an explosive.

7/ The method of claim 6, wherein said explosive is selected from the group consisting of plastrite, hexogen, dynamite, PETN, TNT, "watergel", and mixtures thereof.

8/ The method of claim 1, wherein detection is performed of a narcotic.

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9/ The method of claim 7, wherein said narcotic is selected from the group consisting of heroin, cocaine, Ecstasy, cannabis, marijuana, hashish, and mixtures thereof.

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10/ The method of claim 1, wherein the filter comprises a filter-forming element which comprises a fabric presenting pore or mesh diameter adapted to filtering solid particles of said substance to be detected dispersed in air.

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11/ The method of claim 10, wherein said fabric is a fabric of plastics material.

12/ The method of claim 10, wherein said fabric is a
5 fabric of plastics material selected from the group consisting of polyvinyl chloride, polyethylene, polypropylene and mixtures thereof.

13/ The method of claim 11, wherein said fabric is a
10 woven fabric.

14/ The method of claim 11, wherein said fabric is a non-woven fabric.

15 15/ The method of claim 1, wherein said step of placing said load in a substantially closed space comprises placing said load in a wrapping that is substantially hermetically closed.

20 16/ Apparatus for detecting a substance to be detected, containing at least one component that is dispersible in air in the form of solid particles, comprising:

a) optionally a substantially hermetically closed wrapping in which a load that might contain said
25 substance to be detected can be placed at least for a predetermined storage time for allowing solid particles of said substance to disperse in air;

b) at least one sampling member for sampling the air contained in said closed space, the sampling member
30 comprising at least one filter presenting pore or mesh size adapted to filtering solid particles of said substance that might be dispersed in the air contained in said closed space; and

c) at least one pump for sucking in the air
35 contained in said closed space via said sampling member containing said filter.

17/ The apparatus of claim 16, wherein at least one receptacle is also provided that is suitable for being hermetically closed for the purpose of storing at least temporarily the filter that might contain solid particles of said substance to be detected.

18/ The apparatus of claim 16, comprising a device comprising a plurality of supports for exposing to ambient air one or more filters that might contain solid particles of the substance to be detected, each of the supports optionally being provided with a filter that has been used in a different confined space to detect solid particles of the substance to be detected that might be contained in different loads.

19/ The apparatus of claim 16, comprising at least one analysis device for detecting the presence of solid particles of said substance to be detected filtered or retained on the filter.

20/ The apparatus of claim 19, wherein the analysis device is selected from the group consisting of a gas phase chromatographic apparatus, a nuclear magnetic resonance apparatus, a mass spectrometer apparatus, and combinations thereof, such apparatuses being adapted to detect at least one air dispersible component of said substance to be detected contained in said solid particles.

21/ The apparatus of claim 16, wherein said filter has pore or mesh size adapted to detect an explosive.

22/ The apparatus of claim 21, wherein said explosive is selected from the group consisting of plastrite, hexogen, dynamite, and pentrite, TNT, or "watergel", and its mixtures thereof.

23/ The apparatus of claim 16, wherein said filter has pore or mesh size adapted to detect a narcotic.

24/ The apparatus of claim 23, wherein said narcotic is
5 selected from the group consisting of heroin, cocaine, Ecstasy, cannabis, marijuana, hashish, and mixtures thereof.

25/ The apparatus of claim 16, wherein the filter
10 comprises a hollow tubular outer casing containing a filter-forming element.

26/ The apparatus of claim 25, wherein said filter forming element is supported on a central element.
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27/ The apparatus of claim 25, wherein the filter-forming element is provided at a length that is sufficient to project outside the tubular outer casing.

28/ The apparatus of claim 16, wherein said filter is suitable for mounting at a free end of the sampling member.
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29/ The apparatus of claim 16, wherein the filter
25 comprises a filter-forming element which comprises a fabric having a pore or mesh diameter adapted to filtering air-dispersed solid particles of said substance to be detected.

30/ The apparatus of claim 30, wherein the fabric is a fabric of a plastic material.
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31/ The apparatus of claim 30, wherein said fabric is a fabric of plastic material selected from the group
35 consisting of polyvinyl chloride, polyethylene, polypropylene, and mixtures thereof.

32/ The apparatus of claim 30, wherein said fabric is a woven fabric.

33/ The apparatus of claim 30, wherein the fabric is a
5 no-woven fabric.

34/ The apparatus of claim 30, wherein the filter-forming
element is obtained by rolling up the fabric so as to
define a plurality of layers providing a relatively tight
10 winding between the layers of the rolled up fabric,
thereby efficiently filtering said solid particles of the
substance dispersed in air.

35/ The apparatus of claim 30, wherein the pore or mesh
15 size is about 1mm to about 2mm and diameter or side.

36/ The apparatus of claim 36, wherein the mesh is made
by horizontal and vertical weaving defining a
substantially square shape mesh.